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the book are as follows: Distribution of Glaciers in North America, Glaciers of the Sierra Nevada, Glaciers of Northern California and Cascade Mountains, Glaciers of Canada, Glaciers of Alaska, Glaciers in the Greenland Region, Climatic Changes Indicated by the Glaciers of North America, How and Why Glaciers Move, The Life History of a Glacier. As one would readily expect, more stress is laid upon the glaciers of the region in which Prof. Russell has done most of his field work; consequently the chapter on the glaciers of Alaska is the longest and that on the glaciers of Canada the shortest. It is to be regretted that the author did not include more in his consideration of the glaciers of the Selkirks, which are now of such interest to us through the labors of certain members of the Appalachian Mountain Club and others. We miss in the account of the glaciers of Alaska those graceful bits of description which we had hoped to find because of Prof. Russell's many dangerous experiences and courageous undertakings in the St. Elias Alps, and which had pleased us so much in some parts of his former book, "The Lakes of North America." One of the most suggestive chapters and one which is certainly most broadening to the mind is that on the life history of a glacier, which makes a very fitting conclusion to this excellent reader.

We regret that the book was delayed so long in the press that it seems to be not quite up to date on its appearance, containing as it does no reference to the results attained by Prof. Salisbury in Greenland and by others since. The book should be in the library of every one interested in natural phenomena, of the student, naturalist, or traveler, and we heartily commend it to our readers.

R. E. D.

*The Physical Features of Missouri. By Curtis Fletcher Marbut.
(Report of the Missouri Geological Survey, Vol. X, 1896.)*

The paper upon the physical features of Missouri, just issued by the Missouri Geological Survey, is a very valuable contribution to the science of physiography and makes a step of progress that we hope many other States will soon follow. We have had many scientific treatises upon physiographic subjects, but this is the first time, so far as we know, that a State has been analyzed from the standpoint of the modern science of physiography for the understanding of the people. We are very glad to know, however, that already some other States are planning to issue similar reports.

Mr. Marbut's paper opens in an interesting way with a few para-

graphs showing the historical progress of colonization in Missouri and the way that the colonization was influenced by the physical features. He then divides the States separately and takes up each part in succession. He first treats of the uplands interrupted by the lowland depressions of existing streams along the strikes of the rocks. He divides the uplands into two parts according to topography, the Prairie region and the Ozark region. The Prairie region is but the eastward extent of the plains to be seen in east Kansas, and the topography is familiar. The Ozark region is a broad, comparatively even upland, sloping from a central, southwest-northeast axis, of which the elevation is by succession of steps.

Following this introduction the author considers in some detail the region of the upland and the age of the peneplain which is to be seen crossing the State. He divides the topography into step and platform features, the steps being the various escarpments and the platforms the various lowlands formed by the stripping of the back of the strata. Between one escarpment and the next, facing the centre of the region and arranged concentrically outward, we find several escarpments: First, the Avon, formed in Cambrian age; the Potosi, to the west of the above, but not very clear; the Crystal, outside of the Avon escarpment, the hard layer being a magnesian limestone. This latter is most pronounced along the Missouri River. The principal escarpment of the State is the Burlington one, formed in the Burlington limestone, encircling the Ozark dome, except in the southeast. It is 200 feet above the lowland and it fades out to the north. In central Missouri is seen the Henrietta escarpment, formed in the limestone of that name of the Lower Coal Measures. Owing to the character of the rocks, the slopes are not too steep for pasturage. In northwest Missouri is the Bethany escarpment, which is the divide between the Osage and Missouri rivers. This escarpment continues north through Iowa to the Cretaceous Rocks, and in the other direction through Kansas to Oklahoma.

Of the platforms to be seen associated with the escarpments we have the Jonca inside the Avon escarpment, with a radial drainage and with granite knobs projecting through the sandstone and limestone, and thus bringing to view a stripped old land surface. Between the Avon and Potosi escarpments we find the Summit platform, much dissected by streams and including the greater part of the central Ozark region. This passes gradually into the Salem platform. The Salem platform is a part of the Ozark dome and dips away from it. It is an area little intersected which goes beneath

the Tertiary lowland. The streams have cut steep-sided valleys and uncovered hills of the old peneplain. Above the Crystal and below the Burlington escarpments we find the deeply dissected areas of the Zell platform. Outside of the Burlington escarpment is the Barton platform, the best physical province in the State. Its surface is the upper surface of the resistant Lower Carboniferous limestone, and it may be a restored Pre-Coal Measure peneplain tilted to the west. The drainage is transverse. In the north the area is slightly modified by drift; in the east it dips beneath the Mississippi flood-plain. Associated with this platform in the southwest we find the Nevada lowland formed in soft shales, distinctly an old age region. Below the Bethany limestone we find the Warrensburg platform much modified by ice-laid and water-laid drift. It is a region of low relief, higher to the southward on account of the dip of the rocks and slope of the drainage. Northwest of the Bethany escarpment is the Gentry platform. The Missouri River runs 300 feet below the Lathrop plain, which is a part of the platform.

Beside the platforms and escarpments we have the Tertiary lowland on the southwest of the border of the State, running from the Ozark region into other States. It is a much eroded plain, interrupted by the now famous Crowley's Ridge. The lowland to the west, which is a subsequent lowland, has Long Island Sound for its homologue. The streams follow this lowland.

In considering the drainage Mr. Marbut believes that the upper Mississippi probably assumed its present course about the close of the Cretaceous time, and that the Missouri has a drainage consequent upon the slope given from the Rocky Mountains eastward in the Tertiary. He discusses the consequent and modified drainage of the Ozark region, and gives a very interesting account of the streams in the southeast part of the State superposed upon local hard rocks and producing young valleys, locally known as Shut-ins. He then discusses the character of the valleys of the Ozark and Prairie regions in a broad way and treats of the flood-plain and upper meanders, discussing the form fully and mentioning the differences of opinion of Messrs. Winslow and Davis in regard to the latter.

The report is illustrated by several beautiful full-page cuts, bringing out the character of the uplands and lowlands; and by two double-page maps showing the drainage and the physiographic belts; also by several smaller figures and maps, well suited to their purpose.

If the paper had been a little more simple in its treatment, the

public would have found it much more interesting reading, but it is a step in the right direction, and meets with great commendation. Mr. Marbut has done well in showing so many relations between man and his development and progress, and the physical features of the region. The paper stands as one of the best physiographic products of the last year.

R. E. D.

State Map of New York as an Aid to the Study of Geography. By William Morris Davis. *Examination Bulletin No. 11, University of the State of New York, 1896.* Price, 5 cents.

The small pamphlet of something over twenty pages, recently published by the University of the State of New York, under the title mentioned above, will be an excellent guide and of great help to the teacher of geography in the New York Common Schools. It is a companion one to those previously issued by the same author, on the State Maps of Rhode Island and Massachusetts, but not so directly helpful, because New York State is unfortunately not so well supplied with good maps as are the other States mentioned.

The paper is written upon the well-known basis that home geography should precede that of regions abroad, and that the home region should be the unit of comparison in all descriptive and locative work.

The pamphlet opens with an account of the topographic map now being slowly issued by the State and the U. S. Geological Survey. Then follow paragraphs describing the areal features of the State; then classification and something of their origin. The following is the order of their treatment: Mountains, highlands and uplands; ridges, plateaux and uplands; escarpments; hills; lowlands and plains; valleys; forms of glacial origin; flood plains; terraces; estuarine plains; delta plains; swamps, marshes and lacustrine plains; brooks and rivers; divides; ponds and lakes; rapids and falls; chasms, glens and gorges; features of lake and sea coast. The writer then takes up the relations of these features according to origin, the relations of surface features to man, and some suggestions regarding the apportionment of map work to the different years of the school course.

The wide-awake teacher will find this paper very helpful, but to the teacher whose mind has never been trained to the modern view of geographic classification, the pamphlet will be anything but wholly clear. Certain terms familiar to the modern student are